

MT. CARMEL PUBLIC UTILITY CO.

ELECTRIC TRANSMISSION AND DISTRIBUTION REVIEW

**ANNUAL REPORTING PERIOD -
2020**

**FILED
June 2021**

TABLE OF CONTENTS

PART 411.120(b)(3) ANNUAL REPORT

| | |
|---|----|
| Subsection (b)(3)(A) – Plan for Future Investment and Reliability Improvements to Transmission and Distribution Facilities: | 1 |
| i) Description of Operating Area. | 1 |
| ii) Proposed Reliability Improvement Projects. | 1 |
| iii) Foreseeable Reliability Challenges. | 2 |
| iv) Timetable for the Achievement of the Plans Goals. | 2 |
| v) Unresolved Reliability Complaints from Other Utilities, Independent System Operators, and Alternative Retail Electric Suppliers. | 2 |
| vi) Specific Plans to Resolve Complaints from Other Utilities, Independent System Operators, and Alternative Retail Electric Suppliers. | 2 |
| vii) Proposals to Address Controllable Outages. | 2 |
| viii) Proposals to Reduce the Number of Outages. | 3 |
| Subsection (b)(3)(B) – Report of the Implementation of the Previous Years Plan. | 3 |
| Subsection (b)(3)(C) – Number and Duration of Planned and Unplanned Interruptions. | 6 |
| Subsection (b)(3)(D) – Number and Cause of Controllable Interruptions. | 7 |
| Subsection (b)(3)(E) – Interruptions Caused Solely by Other Entities. | 7 |
| Subsection (b)(3)(F) – Comparison of Interruption Frequency for Customers Supplied by Mt. Carmel Public Utility Co. versus Other Entities. | 7 |
| Subsection (b)(3)(G) – Report of the Age, Current Condition, Performance and Reliability of Existing Transmission and Distribution Facilities. | 7 |
| i) Qualitative Characterization of the Condition of the System. | 7 |
| ii) Summary of Interruptions and reliability Indices. | 7 |
| iii) Expenditures for Transmission Construction and Maintenance | 9 |
| iv) Expenditures for Distribution Construction and Maintenance | 9 |
| v) Results of Customer Satisfaction Survey | 9 |
| vi) Overview of Customer Reliability Complaints | 9 |
| Subsection (b)(3)(H) – Reliability Indices Per Operating Area. | 9 |
| | |
| Subsection (b)(3)(I) – List of Worst-performing Circuits. | 9 |
| Subsection (b)(3)(J) – Historical Review and Planned Improvements for Worst-performing Circuits. | 10 |
| Subsection (b)(3)(K) – List of Customers Experiencing a Set Number of Interruptions. | 11 |
| Subsection (b)(3)(L) – List of Customers Experiencing Interruptions in Excess of Reliability Targets. | 11 |
| Subsection (b)(3)(M) – Mt. Carmel Public Utility Co. Representative to Contact for Additional Information Regarding This Report. | 12 |
| Attachments: | |
| A. Customer Satisfaction Survey - - 2020, | |
| B. Supplement to Annual Report | |

Subsection (b)(3)(A): A plan for future investment and, where necessary, reliability improvements for the jurisdictional entity's transmission and distribution facilities that will ensure continued reliable delivery of energy to customers and provide the delivery reliability needed for fair and open competition, along with the estimated cost of implementing the plan and any changes to the plan from the previous annual report.

i) The Plan must cover all operating areas, including a description of the relevant characteristics of each operating area and the age and current condition of the jurisdictional entity's equipment and facilities in each operating area.

Mt. Carmel Public Utility Co. maintains only one operating area. This territory covers approx. 107 square miles, one incorporated municipality and approx. 5,300 electric customers. Within the operating area there are approximately 19.16 line miles of transmission facilities, approximately 38.16 line miles of 69Kv Source of Supply facilities, 4.91 line miles of 69kv distribution facilities 255.21 line miles of 7200Kv overhead distribution facilities and approximately 10.07 line miles of 7200Kv underground distribution facilities, with approx. 27.21% of this total being urban distribution facilities. Five distribution substations with a total of fifteen distribution feeders, and two industrial\wholesale substations.

The information regarding the age and current condition of Mt. Carmel Public Utility Co. facilities is addressed in the response to subsection (b)(3)(G)(i).

Table 1: Budgeted Capital and Operations and Maintenance, O&M, amounts for the next three years.

| <u>CATEGORY</u> | <u>YEAR</u> | | | |
|---|-------------|-------------|-------------|-------------|
| | 2021 | 2022 | 2023 | 2024 |
| Transmission – Capital | \$188,640 | \$70,000 | \$70,000 | \$70,000 |
| Transmission – O&M | \$43,392 | \$44,694 | \$46,035 | \$47,461 |
| Distribution\Source of Supply - Capital | \$66,000 | \$81,218 | \$81,855 | \$22,511 |
| Distribution – Capital | \$571,892 | \$343,627 | \$347,561 | \$139,133 |
| Distribution O&M | \$1,914,346 | \$1,971,776 | \$2,030,929 | \$2,091,857 |
| Total | \$2,784,270 | \$2,511,315 | \$2,576,380 | \$2,370,897 |

The estimated cost of transmission supplied to Mt. Carmel by others is not included in the values for Transmission Operations and Maintenance listed above.

The estimated Transmission Capital values for 2021 reflect the proposed Transmission Capital expenditures for that year as outlined in this report. The estimated Transmission Capital values for the years 2022 thru 2024 represent a baseline investment for those years as no large scale capital projects have been identified past 2021

The Distribution\Source of Supply Capital estimates for 2021 thru 2023 in the table above represent the completion of projects identified in this report through those years. The value past 2024 represents a more baseline investment as no projects have been defined in this category for that year.

Based on the Uniform System of Accounts, Distribution\Source of Supply O&M values are incorporated into the O&M values for Distribution in the table above.

The Distribution Capital budget amounts for 2021 thru 2023 represent the estimated values associated with the completion of projects outlined in this report for those years. The 2024 value represents a baseline investment in Distribution Capital for that year, as no large scale capital projects have been identified in that year.

ii) Proposed Reliability Improvements,

Distribution Facilities:

Circuit 21000 – (Froman Feeder) In late summer Mt. Carmel plans to complete the rebuild and reconductor of approximately 3,600 ft. of primary overhead facilities in the Lancaster area at an estimated expenditure of \$81,000.

Circuit inspections have indicated that several pole structures in Line Section F-010N-130W-002-006, between Friendsville Ave and E 1000 Rd., are in need of replacement due to age. Mt. Carmel has determined that the best course of action is to replace all of the structures in this line section due to access issues and upgrade the line conductor from #6 CU to #2 ACSR. Currently Mt. Carmel estimates the completion date for this work to be late 2022. No engineering cost estimate is currently available.

Circuit 22000 - (Allendale Feeder) Mt. Carmel has identified the need to reconductor approximately 4,000 feet of three phase OHD facilities in the northcentral portion of this circuit's coverage area to accommodate the service requirements at two farming locations supplied by these facilities. The scheduled completion for this project is late summer of 2021 at an estimated expenditure of \$39,029.

Mt. Carmel proposes no other reliability improvements for the next three years, but rather intends to complete or continue those projects described below under Subsection (b)(3)(B).

iii) The plan shall identify all foreseeable reliability challenges and describe specific projects for addressing each.

Reliability challenges have been identified in the following areas:

Tree Related Interruptions – Mt. Carmel Public Utility Co. recognizes the impact that tree contact has on service reliability. Efforts to minimize interruptions due to tree contact include the installation of underground facilities, where feasible, the study and analyses of areas that pose accessibility conflicts to address these areas as appropriate. MCPU strives to maintain a three year cycle for distribution trimming. Where it is agreeable with the property owner trees are removed completely in an effort to eliminate potential future contact.

Animal Related Interruptions – See “Animal Related” under subsection (b)(3)(A)(vii) below

Circuits With High Occurrences of Interruptions – Distribution circuits which have experienced high numbers of outages are studied, and where applicable, sectionalizing devices are added, line reclosers are relocated or added, and, where feasible, portions are switched to another distribution circuit, or portions which pose accessibility issues are rebuilt or relocated as applicable. In addition expenditures listed in the table in response to subsection (b)(3)(A)(ii) above, under Distribution Operations and Maintenance, allow for pole and crossarm repair or replacement, insulator replacement, and arrestor replacement or installation as may be necessary to improve circuit reliability.

Facility Accessibility – In areas where access to distribution facilities is limited studies are conducted to determine the feasibility of facility rebuild or relocation.

iv) The plan shall provide a timetable for the achievement of the plans goals.

A schedule for completion of those items listed in sections ii and iii above is indicated for those issues that are not ongoing.

v) The plan shall report and address all unresolved reliability complaints about the jurisdictional entity's system received from other utilities, independent system operators, or alternative retail electric suppliers.

Mt. Carmel Public Utility Co. has received no reliability complaints from other utilities, independent system operators, or alternative retail electric suppliers.

vi) The plan shall report the specific actions, if any, the jurisdictional entity is taking to address the concerns raised in complaints received from other utilities, independent system operators, or alternate retail electric suppliers.

No actions are required.

vii) The plan shall consider all interruption causes listed in subsection (b)(3)(D)

Animal Related – Animal guards are installed at new transformer installations and on existing facilities as animal related problems are encountered.

Tree Related – This issue is covered in subsection(b)(3)(A),iii above.

Weather Related – Lightning arrestors are replaced as damaged equipment is encountered. Mt. Carmel continues to install additional lightning arrestors throughout its system in an effort to further minimize interruptions caused by lightning strikes.

Intentional\Maintenance Related – Outages that are scheduled for the purposes of maintenance or intentionally initiated in an effort to make service restoration work as safe as possible are kept to as minimal a duration as possible. Efforts are made to notify customers who may be impacted by the outage as to the estimated duration.

For all other interruption causes listed in subsection (b)(3)(D), Mt. Carmel believes that the “General System Wide Improvements” and “Circuit Specific Improvements” listed in subsection (b)(3)(A)(ii) above combined with the items outlined in subsection (b)(3)(B) and subsection (b)(3)(J) below address these remaining issues.

viii) *The plan must consider the effects on customers and the cost of reducing the number of interruptions reported as required by subsection (b)(3)(C).*

Table 2: The following chart depicts the effects of interruptions, by cause category, on Mt. Carmel customers during the 2020 reporting period.

| CATEGORY | NUMBER OF EVENTS | SERVICE INTERRUPTIONS | TOTAL DURATION (MINUTES) |
|--------------------------------------|------------------|-----------------------|--------------------------|
| Animal Related | 20 | 223 | 11,119 |
| Vegetation Related | 35 | 1,029 | 90,958 |
| Employee\Contractor Personnel Errors | 0 | 0 | 0 |
| Underground Equipment Related | 0 | 0 | 0 |
| Transmission Equipment | 0 | 0 | 0 |
| Substation Equipment | 0 | 0 | 0 |
| Weather | 46 | 1,095 | 101,347 |
| Intentional\Maintenance | 47 | 2,449 | 3,387,627 |
| Other Alternative Supplier\Utility | 0 | 0 | 0 |
| Customer Equipment | 20 | 20 | 1,459 |
| Public | 8 | 38 | 4,020 |
| Overhead Equipment | 30 | 1,531 | 224,991 |
| Unknown | 38 | 60,585 | 250,619 |
| Other | 0 | 0 | 0 |
| Overload | 0 | 0 | 0 |

The budgeted values provided in subsection (b)(3)(A)(ii) above under Distribution Operations and Maintenance allow for tree trimming operations, installation of animal protection, adding sectionalizing devices, pole and crossarm replacement or repair, insulator replacement, and arrestor replacement or installation as may be necessary to improve circuit reliability. Cost estimates, where available, are provided for circuit specific projects as outlined in subsection (b)(3)(A)(ii) above and subsection (b)(3)(B) and subsection (b)(3)(J) below.

Subsection (b)(3)(B): A report of the jurisdictional entity’s implementation of this plan filed pursuant to subsection (b)(3)(A) of this Section for the previous annual reporting period, including an identification of significant deviations from the first year of the previous plan and the reasons for the deviations.

Information regarding the implementation of the previous year’s plan and any significant deviations from this plan is listed below.

Table 3: The following table represents estimated and actual expenditures for 2019.

| Category | Budget Estimate – 2020 | Actual Expenditures – 2020 |
|---|------------------------|----------------------------|
| Capital (Transmission and Distribution) | \$711,600 | \$1,278,787 |
| O&M (Transmission and Distribution) | \$1,954,150 | \$1,907,581 |
| Total | \$2,665,750 | \$3,186,368 |

Reliability improvements as indicated in the previous year’s report(s).

On March 30, 2020 Mt. Carmel implemented a “Rotating Crew” plan to comply with State and Federal mandates in effect at the time as a result of the CORONAVIRUS outbreak. This plan required that “skeleton” work and maintenance crews be placed on a seven day work rotation with additional crews being on “standby” until their scheduled rotation began. This reduction in workforce resulted in scheduled maintenance and construction projects falling behind previously projected completion deadlines. On May 04, 2020 Mt. Carmel was able to lift these staff reduction measures and begin to catch up on its maintenance and construction schedule. But additional localized outbreaks and required quarantine measures, defined by local health authorities, continued to limit Mt. Carmel’s workforce through the end of the 2020 reporting period. Revised completion schedules for previously submitted projects are identified under the headings “2020 Update or Deviation” below.

As indicated under subsection (b)(3)(A), Sub-part “ii” of Mt. Carmel’s “Electric Transmission and Distribution Review for the 2019 reporting period.

Mt. Carmel proposes no further large scale system wide or circuit specific projects for the next three years. Rather, Mt. Carmel believes that the completion of the projects identified in subsection (B)(3)(b) below as well as continued system maintenance will provide system reliability improvements in that term.

As indicated under subsection (b)(3)(A), Sub-part “ii” of Mt. Carmel’s “Electric Transmission and Distribution Review for the 2017 reporting period.

Transmission Facilities:

In 2019 Mt. Carmel plans to replace the remaining eleven (11) structures in its 138Kv transmission facilities which lie in Edwards County, Illinois at an estimated expenditure of \$70,000.00 for that year. In 2020 and 2021 Mt. Carmel plans to replace approximately ten (10) pole structures per year beginning at the Wabash-Edwards County line and working eastward toward MCPU’s Keensburg Substation. This equates to approximately forty percent of the total pole structures in this section of line. The total estimated expenditure for these two years is \$140,000.00.

2018 Update or Deviation: *Mt. Carmel plans to continue this project into the year 2022.*

2019 Update or Deviation: *Due to a shortened construction season, as indicated above, Mt. Carmel made no progress on this project in 2019. In early January 2020 Mt. Carmel was able to set approximately ten (10) of the eleven (11) structures scheduled for replacement in 2019. Mt. Carmel plans to complete the transfer of these structures as weather conditions allow. There have been no significant changes to the proposed 2020-2021 portions of this project.*

Current, 2020 Update or Deviation: *That portion of this project scheduled to be completed in 2020 has been rescheduled for the fall of 2021 at an estimated expenditure of \$188,640 for that year.*

Distribution\Source of Supply:

Mt. Carmel is currently working on constructing approximately 1.09 line miles of 69Kv Source of Supply facilities between its Plant and South Division Substations. This project would allow for the removal of approximately 2.23 line miles of facilities from a known floodplain area along the Wabash River to a more accessible location on the landside of the levee surrounding the southern portion of the City of Mt. Carmel. This project is being undertaken because the existing facilities are nearing their maintenance schedule and have historically been involved in outage events as a result of damage during high water events. Mt. Carmel estimates this project will be completed in 2019 at a total expenditure of \$250,000.00.

2018 Update or Deviation: *There have been no significant changes to the time line for completion of this project. Mt. Carmel estimates the 2019 expenditure for completion of this project to be \$285,500.00.*

2019 Update or Deviation: *Due to R.O.W. acquisition delays Mt. Carmel has rescheduled this project to begin in the summer of 2020. There has been no change to the estimated expenditure for completion.*

Current, 2020 Update or Deviation: *Mt. Carmel believes that at the end of the 2020 reporting period this project was approximately 50% complete. Mt. Carmel further estimates that the 2020 expenditure for this project is \$439,396.79. Mt. Carmel continues to work toward a projected completion date for this project of spring 2021.*

As indicated under subsection (b)(3)(A), Sub-part “ii” of Mt. Carmel’s “Electric Transmission and Distribution Review for the 2016 reporting period.

Circuit #22000 – (Allendale Feeder) *In 2018 and 2019 Mt. Carmel plans to upgrade the existing aged URD primary and secondary facilities in both the Northwood and Cherry Hills Subdivisions. This project would replace approx. 1500 total feet of aged direct bury URD facilities in these locations and impact approx. thirty-one total customers. The estimated expenditure for these projects is \$109,590.00.*

2017 Update or Deviation: *Mt. Carmel had originally scheduled these projects to begin in 2018 with an estimated completion date of 2019. After a review of the status of ongoing projects, as defined in this report, and the addition of the Distribution\Source of Supply projects listed as “Proposed Reliability Improvements on page two of this report Mt. Carmel has rescheduled this project for the 2019 thru 2020 reporting periods. Mt. Carmel believes that this rescheduling will allow for the completion of projects involving the Distribution\Source of Supply infrastructure and complete the upgrade of the facilities which are the backbone of Mt. Carmel’s supply to its customers.*

2018 Update or Deviation: *In October of 2018 MCPU completed a portion of this project by replacing approximately 900 feet of aged URD Primary cable in the Northwood Subdivision area as well as replacing two vault type transformers units with pad mount units. Although Mt. Carmel had reported this work would be done in 2019 and 2020, as stated above, delays in other proposed projects caused Mt. Carmel to reevaluate its project work schedule. This portion of the project impacted nine customers at an estimated expenditure of*

\$50,946.12. *Mt. Carmel estimates that the Cherry Hills portion of this project will be completed in the fall 2019 at an estimated expenditure of \$40,000.00.*

2019 Update or Deviation: *Mt. Carmel did not complete the Cherry Hills portion of this project as described. A review of this project and the Bona Terra project, outlined below, concluded that due to continued outage concerns as well as unusually high vegetation growth in the heavily wooded Bona Terra area as a result of higher than normal precipitation amounts during the two (2) most recent reporting periods Mt. Carmel has opted to reschedule this project for the 2021 construction season. There has been no modification to the original expenditure for completion.*

Current, 2020 Update or Deviation: *Mt. Carmel has rescheduled this project for the summer of 2022 no updated estimate has been compiled.*

In 2019 MT. Carmel proposes to replace approx. 3700 feet of existing OHD primary facilities in the Bona Terra Subdivision with URD facilities. This is a heavily wooded subdivision and access to the existing facilities is limited due to restricted R.O.W. areas. Mt. Carmel estimates that this project would impact approx. 21 customers at an expenditure of \$95,145.00

2017 Update or Deviation: *Mt. Carmel has made no significant changes to the scope of this project.*

2018 Update or Deviation: *Mt. Carmel has reviewed the scope of this project and revised it to reflect this review. Currently Mt. Carmel plans to replace only approximately 1,600 ft. of Single Phase OHD conductor with URD facilities. The project completion is scheduled for the summer of 2019 at an estimated expenditure of \$100,000.00.*

2019 Update or Deviation: *Due to unusually wet conditions during the spring of 2019 shortening the construction season and the volume of other work outlined in this section Mt. Carmel has rescheduled this project for the 2020 construction season. There has been no modification to the original expenditure for completion.*

Current, 2020 Update or Deviation: *Mt. Carmel proposes to complete this project in 2021 at an estimated expenditure of \$83,583.*

Circuits 11000 – (Circuit #1), Circuit 12000 – (Circuit #2) and Circuit 16000 – (Circuit #6) *In 2020 Mt. Carmel plans to begin the reconstruction of approx. 2.57 total line miles of existing aged three phase OHD 4/0 CU conductor with 4/0 Hendrix OHD construction. These facilities represent the trunk lines for Circuits 11000, 12000, and 16000 originating at Mt. Carmel's plant substation and terminating at 11th and Mulberry. Combined these facilities serve approx. 775 customers in the residential and business districts in the central and eastern portions of the city of Mt. Carmel. The estimated expenditure for this project is \$425,000.*

2017 Update or Deviation: *Mt. Carmel has made no significant changes to the schedule or budget for project.*

2018 Update or Deviation: *Mt. Carmel plans to begin this project in the 2020 Plan Year, with a current completion date of 2021, no significant changes have been made to the budget for this project.*

2019 Update or Deviation: *Due to delays in other projects and the volume of other work completed, as described in this report, Mt. Carmel plans to begin the engineering phase of this project in the summer of 2020.*

Current, 2020 Update or Deviation: *Mt. Carmel continues to engineer the specifics of this project.*

The following work was not part of the plan submitted in the previous years' report.

Circuit #14000 – (Circuit #4)

In May the transformer installation at transformer point T-010S-120W-020-255 was upgraded to accommodate the expansion of the customers facilities being fed by this point. Mt. Carmel estimates that the expenditure for this project was \$12,104.12.

Circuit #21000 – (Froman Dr. Feeder)

In March MCPU replaced a line pole and installed an additional service pole near 2714 Janeway dr. in an effort to eliminate a potential NESC code violation in the area. Additionally, Fuse Point F-010N-120W-008-075 was created with the installation of an additional protective device at this location. Mt. Carmel estimates the expenditure for this work to be \$5,742.08.

In May the fused protective device located at Fuse Point F-010S-120W-018-015 was replaced due to age and condition.

Between late August and early September Mt. Carmel remediated several NESC issues and other concerns identified by Staff during field inspections conducted on this circuit in early August 2020. Mt Carmel estimates that the total expenditure for these remediations was \$8,998.04.

In August the service facilities to 214 South Drive were relocated in an effort to eliminate a possible NESC violation at this location. Mt. Carmel estimates that the expenditure for this work to be \$1,073.08.

In September Mt. Carmel remediated another potential NESC code violation near 21421 Phelps Ln. the estimated cost of this work is \$634.12.

Additionally, Circuit-wide Mt. Carmel performed other maintenance due to circuit inspection identification or other maintenance concerns. Mt. Carmel estimates that the total expenditure for this additional work was \$85,000.71

Circuit #22000 – (Allendale Feeder)

In January Mt. Carmel removed the voltage regulators located at Regulator Point VR-010N-120W-021-003 for maintenance and relocated the voltage regulator units near 8754 N 1900 Blvd to Regulator Point VR-010N-120W-021-003. Mt. Carmel estimates that this project had an expenditure of \$5,916.04.

In March Mt. Carmel installed an additional service pole near 11410 N 2350 Blvd to eliminate a potential NESC code violation at this service location. The estimated expenditure for this work is \$1,557.50.

In August Mt. Carmel completed the rebuild of approx. 900' of single phase OHD primary facilities in the 1300 and 1400 blocks of North Cherry in an effort to eliminate a redundant phase conductor and upgrade service facilities in the area. The estimated expenditure for this project is \$37,769.02.

In September the customer service pole at 4687 N 2000 RD was replaced in an effort to eliminate a possible NESC code violation at this service location. The estimated expenditure for this work is \$1,045.78.

Additionally, Circuit-wide Mt. Carmel performed other maintenance due to circuit inspection identification or other maintenance concerns. Mt. Carmel estimates that the total expenditure for this additional work was \$92,519.94.

Circuit #43000 – (Rural West 9th Feeder)

In June Mt. Carmel completed the upgrade of approximately .78 line miles of OHD facilities which included the installation of an additional phase conductor. This project was undertaken in order to supply three phase service capability to a customers expanding farm operation at 7733 Wabash 17 Ave. Mt. Carmel estimates that the expenditure for this upgrade is \$46,378.38.

Additionally, Circuit-wide Mt. Carmel performed other maintenance due to circuit inspection identification or other maintenance concerns. Mt. Carmel estimates that the total expenditure for this additional work was \$36,597.74.

Additionally –

System wide, as a result of maintenance or other issues, MCPU replaced approximately thirty-eight (34) line poles, three (3) customer services, four (4) customer service poles, twelve (12) transformer units, and removed three (3) customer service locations and removed approximately 700 feet of primary facilities which were no longer required.

Subsection (b)(3)(C): The number and duration of planned and unplanned interruptions for the annual reporting period and their impacts on customers.

Note: In its Annual Reliability Review for the 2019 reporting period Mt. Carmel defined its criteria for the isolation of certain distribution facilities located in low lying areas along and near the Wabash River which are known to be impacted during high water conditions.

Between January 11 and May 23, 2020 Mt. Carmel implemented its isolation program on four occasions when river levels were projected to exceed the nineteen (19) Ft. flood stage threshold. Combined these events account for 229 customer service interruptions, or 9% of the total planned interruptions for the reporting period and a total of 3,281,910 minutes of customer interruption duration, or 97% of the total planned interruption duration for the reporting period. Table (4) below shows the achieved river levels prompting Mt. Carmel to initiate isolation measures.

Table 4: 2020 National Weather Service and USGS Recorded River Crests.

| DATE | CREST | MCPU ISOLATION DATES |
|------------|-----------|----------------------|
| 01/20/2020 | 27.85 Ft. | 01/13 – 01/28/2020 |
| 02/17/2020 | 20.09 Ft. | 02/14 – 02/20/2020 |
| 03/27/2020 | 24.82 Ft. | 03/20 – 04/06/2020 |
| 05/25/2020 | 19.83 Ft. | 05/21 – 05/23/2020 |

2020 Planned (scheduled) Interruptions and Duration – There were 47 planned interruption events resulting in 2,449 customer service interruptions for a total of 3,387,627 minutes of customer interruption duration.

2020 Unplanned (unscheduled) Interruptions and Duration – Mt. Carmel calculates that there were 197 unscheduled interruption events resulting in 684,513 total minutes of customer outage duration.

Subsection (b)(3)(D): The number and causes of controllable interruptions for the annual reporting period.

See Supplemental Report.

Subsection (b)(3)(E): Customer service interruptions that were due solely to the actions or inactions of another utility, jurisdictional entity, independent system operator, or alternative retail electric supplier for the annual reporting period.

Mt. Carmel experienced no outages attributed solely to the actions or inactions of another utility, jurisdictional entity, independent system operator, or alternative retail electric supplier during the most recent reporting period.

Subsection (b)(3)(F): A comparison of interruption frequency and duration for customers buying electric energy from the jurisdictional entity versus customers buying electric energy from another utility, or alternative retail electric supplier for the annual reporting period. A jurisdictional entity may base this comparison on each customer's supplier as of December 31 of each year. A jurisdictional entity need not include information on customers whose electric energy supplier is not known to the jurisdictional entity.

No customers were supplied by another entity in 2020.

Subsection (b)(3)(G): A report of the age, current condition, reliability and performance of the jurisdictional entity's existing transmission and distribution facilities, which shall include, without limitation, the data listed below. In analyzing and reporting the age of the jurisdictional entity's plant and equipment the jurisdictional entity may utilize book depreciation. Statistical estimation and analysis may be used where actual ages and conditions of facilities are not readily available. The use of such techniques shall be disclosed in the report.

i) A qualitative characterization of the condition of the jurisdictional entity's system defining the criteria used in making the qualitative assessment, and explaining why they are appropriate.

Mt. Carmel Public Utility Co.'s transmission facilities have an approximate age of 23 years with an average remaining life of approximately 7 years. The distribution facilities have an approximate average of 15 years with an average remaining life of 15 years. These figures are based on analysis completed 12/31/20 using the total transmission and distribution investment dollars and the life to date depreciation dollars to determine the percentage of remaining life.

The reliability enhancement programs outlined in subsection (b)(3)(A) – iii,vii,viii, as provided in this report, will ensure that the facilities operated by Mt. Carmel Public Utility Co. are inspected and maintained on a regular basis. Based on these actions the Mt. Carmel Public Utility Co.'s reliability indices and the results of the customer satisfaction survey (Attachment "A" to this report) Mt. Carmel believes that the existing Transmission and Distribution facilities are in good operating condition and provide customers with safe and reliable service.

ii) A summary of the jurisdictional entity's interruptions and voltage variances reportable under this part, including the reliability indices for the annual reporting period.

The total number of planned and unplanned outage events for 2020 was 244.

Note: Mt. Carmel experienced five (5) events during the most recent reporting period that resulted in outages occurring at the Substation or Distribution Source of Supply level, resulting in a Loss of Supply event. These events are incorporated into Table 6 below and are defined as follows:

At approximately 14:57 on January 08, 2020 MCPU's electric distribution system experienced a Loss of Supply event which resulted in source voltage being lost to both its South Division and West Third Street Substations. During the event MCPU was notified by its Wholesale Electric Supplier that a fault, of unknown origin, had occurred at or near the source substation from which MCPU's 69Kv Source of Supply originates at the Wholesale Suppliers Lawrenceville Substation. This fault resulted in an operation on the source breaker for MCPU's 69Kv Source of Supply. This event had the following impact on MCPU's distribution system: MCPU's South Division Substation experienced an outage event lasting approximately 17 minutes and impacting 841 customers for a total of approximately 14,297 minutes of customer outage duration. Additionally, MCPU's West Third Street Substation experienced an outage event lasting approximately 59 minutes and impacting 733 customers for a total of approximately 43,247 minutes of customer outage duration.

On May 23, 2020 at approximately 8:15pm Mt. Carmel experienced a Loss of Supply event caused by the failure of a 69Kv crossarm assembly on Mt. Carmel's 69Kv Source of Supply facilities in the southern portion of Wabash County. The failure of this assembly caused a Loss of Supply to Mt. Carmel's South Division Street Substation resulting in 840 customer service interruptions and totaling 117,600 minutes of customer outage duration.

Mt. Carmel believes that on May 24, 2020 at approximately 3:36pm a lightning strike, during a storm event, impacted its West Third St. Substation location. Mt. Carmel believes that this strike was in such proximity to the substation location that it caused the 7.2KV main breaker unit in the substation to operate and open resulting in a loss of supply to the substation. Mt. Carmel calculates that this event impacted 733 customer service interruptions and totaling 73,300 minutes of customer outage duration.

On June 6, 2020 at approximately 8:48pm Mt. Carmel's Wholesale Electric Supplier experienced a fault of unknown origin on it's the OCB device location at its Lawrenceville Substation. This fault resulted in a Loss of Supply to Mt. Carmel's East 11th Street Substation. As a result of this event 1,808 customers saw a service interruption totaling 180,800 minutes of customer interruption duration.

The values identified in *Italic* in Table 6 below represent MCPU's System Reliability Indices excluding the Loss of Supply events listed above.

Table 5: The following table summarizes customer interruptions experienced in 2019 by cause category.

| CATEGORY | NUMBER OF EVENTS | PERCENT OF TOTAL EVENTS |
|--------------------------------------|------------------|-------------------------|
| Animal Related | 20 | 8.20 |
| Vegetation | 35 | 14.34 |
| Employee\Contractor Personnel Errors | 0 | 0 |
| Underground Equipment Related | 0 | 0 |
| Transmission Equipment | 0 | 0 |
| Substation Equipment | 0 | 0 |
| Weather | 46 | 18.85 |
| Intentional\Maintenance | 47 | 19.26 |
| Other Alternative Supplier\Utility | 0 | 0 |
| Customer Equipment | 20 | 8.20 |
| Public | 8 | 3.28 |
| Overhead Equipment | 30 | 12.30 |
| Unknown | 38 | 15.57 |
| Other | 0 | 0 |
| Overload | 0 | 0 |

Table 6: The system reliability indices for 2020 are as follows

| | |
|-------------|---------------|
| SAIFI | 1.14 / 0.62 |
| CAIFI | 1.92 / 1.68 |
| CAIDI \ Min | 90.94 / 99.13 |

iii) *The jurisdictional entity's expenditures for transmission construction and maintenance for the annual reporting period expressed in constant 1998 dollars, the ratio of those expenditures to the jurisdictional entity's transmission investment and the average remaining depreciation lives of the entity's transmission facilities, expressed as a percentage of total depreciation lives.*

The total depreciated cost of transmission plant in service is \$2,123,080 and the average remaining depreciation lives is 24.78%. The 2020 capital expenditure for transmission plant expressed in constant 1998 dollars was \$61,211 and maintenance expenditures of \$29,015 expressed in constant 1998 dollars for a total of 4.2% of depreciated plant in service and 1.05% of original cost. (No expenses for operations are included in these calculations.)

iv) *The jurisdictional entity's expenditures for distribution construction and maintenance for the annual reporting period expressed in constant 1998 dollars, the ratio of those expenditures to the jurisdictional entity's distribution investment and the average remaining depreciation lives of the entity's distribution facilities, expressed as a percentage of the total depreciation lives.*

The total depreciated cost of distribution plant in service is \$12,232,813 and the average remaining depreciation lives is 49.24%. The 2020 capital expenditure for distribution plant expressed in constant 1998 dollars was \$472,247 or 1.90% of the distribution investment. Maintenance expenditures, expressed in constant 1998 dollars, were \$812,954 or 1.90% of the distribution investment. These total expenditures represent 10.50% of depreciated distribution investment and 5.2% of total distribution investment. (No operations expenses are included in these calculations.)

v) *The results of a customer satisfaction survey completed during the annual reporting period and covering reliability, customer service, and customer understanding of the jurisdictional entity's services and prices.*

This information is provided in Attachment "A" of this report.

vi) *An overview pertaining to the number and substance of customers' reliability complaints for the annual reporting period and their distribution over the jurisdictional entity's operating area.*

Mt. Carmel Public Utility Co. has received no informal or formal reliability complaints filed by customers of record with the Illinois Commerce Commission in the annual reporting period.

Subsection (b)(3)(H): A table showing the achieved level of each of the three reliability indices of each operating area for the annual reporting period (providing, however, that for any reporting period commencing before April 1, 1998, a jurisdictional entity shall not be required to report the CAIFI reliability index).

Table 7: The system reliability indices for 2020 are as follows

| | |
|-------------|---------------|
| SAIFI | 1.14 / 0.62 |
| CAIFI | 1.92 / 1.68 |
| CAIDI \ Min | 90.94 / 99.13 |

Note: During 2020 Mt. Carmel's distribution system experienced five outage events which originated at the source of supply or substation level. The indices values identified in italic in in Table 7 above represent Mt. Carmel's 2020 reliability indices excluding these events.

Subsection (b)(3)(I): A list showing the worst-performing circuits for each operating area for the annual reporting period with the understanding that the designation of circuits as "worst-performing circuits" shall not, in and of itself, indicate a violation of this part.

Worst-performing Circuit(s) for reporting period – 2020, Mt. Carmel's Circuit #41000 (Rural West 3Rd Street Feeder) achieved the highest indices value in both the SAIFI and CAIFI categories. While Mt. Carmel's Circuit #17000 (Circuit #7) achieved the highest value in the CAIDI category for the most recent reporting period.

Table 8: Worst-performing Circuits, 2020

| SAIFI (Outages / Customers Served) | CAIFI (Outages / Customers Impacted) | CAIDI \ Min. (Duration / Outages) |
|--|--|---|
| Circuit #41000 – (Rural West 3 Rd St. Feeder) 2.56 | Circuit #41000 – (Rural West 3 Rd St. Feeder) 2.57 | Circuit #17000 – (Circuit #7) 105.79 |

Subsection (b)(3)(J): A statement of the operating and maintenance history of circuits designated as worst-performing circuits; a description of any action taken or planned to improve the performance of any such circuit (which shall include information concerning the cost of such action); and a schedule for the completion of any such action. (the jurisdictional entity may decide, based on cost considerations or other factors that it should take no action to improve the performance of one or more circuits designated as worst-performing circuits. If the jurisdictional entity decides to take no action to improve the performance of one or more circuits designated as worst-performing circuits, the jurisdictional entity shall explain its decision in its annual report.

Operating History Circuit #41000 – (Rural West 3Rd St. Feeder)

Highest SAIFI and CAIFI Circuit. This circuit experienced twenty-one (21) outage events during the reporting period.

Table 9: The following table indicates the number of outages by cause category for this circuit.

| CATEGORY | NUMBER OF INTERRUPTIONS | PERCENT OF TOTAL INTERRUPTIONS |
|--------------------|-------------------------|--------------------------------|
| Vegetation Related | 5 | 23.81 |
| Weather Related | 6 | 28.57 |
| Overhead Equipment | 5 | 23.81 |
| Unknown Origin | 4 | 19.05 |
| Public Related | 1 | 4.76 |

Maintenance History:

This circuit is predominantly rural overhead construction and consists of approx. 32.05 line miles of facilities. Mt Carmel estimates the most recent general circuit inspection was completed in August 2020 as part of Staff's Circuit Inspection Program. MCPU further estimates that trimming operations were last completed on this circuit in June 2018, with the next scheduled completion date being between April and June 2021.

Table 10: The following table indicates the maintenance and construction history on this circuit for the reporting period.

| DATE: | MAINTENANCE PERFORMED: | LOCATION: | COST (EST): |
|------------|--|--|-------------|
| 01/30/2020 | Replaced 5 Line Poles & Transfmr. Bank Due to Third Party Damage. Created Fuse Point F-010S-120W-030-042 | Fuse Point F-010S-120W-030-042 Created at 12184 Hwy 1 | \$19,479.85 |
| 02/11/2020 | Replaced Line Pole – Identified in 2018 Staff Inspection | 11460 Sugar Creek Ave. | \$713.60 |
| 03/18/2020 | Upgraded Service Buss and installed facilities for new service location. | Transfmr. Point T-010S-130W-036-031 at 11794 E 940 Ln. | \$1,499.19 |
| 03/20/2020 | Added Additional Transfmr. for Upgrade to Customers Grain Bin Facilities. | Transfmr. Point T-020S-130W-015-012 Created at 7715 N 850 Blvd | \$2,002.94 |
| 07/23/2020 | Replaced Transfmr. Installation Due to Outage Event | Transfmr Point T-020S-130W-011-001 at 9283 Beall Woods Ave. | \$1,431.29 |
| 09/03/2020 | Replaced Line Pole – Identified in 2020 Staff Inspection | 8975 N 1250 Blvd | \$787.81 |
| 09/03/2020 | Replaced 5 Line Poles – 2 Items Identified in 2020 Staff Inspection | West of 10011 N 1250 Blvd | \$7,273.28 |
| 10/09/2020 | Replaced 8 Line Poles – 2019 Staff and 2020 MCPU Inspections | Between 6861 and 6539 N 1220 Blvd | \$19,052.67 |
| 10/13/2020 | Replaced Line Pole – 2020 MCPU Inspection | Near 11753 E 1020 Ln | \$1,871.55 |
| 10/23/2020 | Replaced Corner Pole and Line Pole | N 1100 Blvd & Wabash 10 Ave and 10413 E 920 Ln | \$5,883.38 |

Actions Planned or Taken To Improve Reliability:

- Actions Planned: Mt. Carmel has no large scale actions planned for this circuit. Based on the operating history provided in Table 10 above, Mt. Carmel believes that the best short-term action is to continue routine tree trimming and inspection schedules on this circuit in an effort to identify possible reliability concerns.
- Actions Taken: See items in Table 10 above.

Operating History Circuit #17000 – (Circuit #7)

Highest CAIDI Circuit. This circuit experienced seven (7) outage events during the reporting period.

Table 11: The following table indicates the number of outages by cause category for this circuit.

| CATEGORY | NUMBER OF INTERRUPTIONS | PERCENT OF TOTAL INTERRUPTIONS |
|--------------------|-------------------------|--------------------------------|
| Vegetation Related | 3 | 42.86 |
| Overhead Equipment | 1 | 14.29 |
| Unknown Origin | 3 | 42.86 |

Maintenance History:

This circuit is predominantly urban overhead and consists of approx. 8.67 line miles of facilities. Mt Carmel estimates the most recent circuit inspection was completed in September 2020. MCPU further estimates that trimming operations were last completed on this circuit in July 2019, with the next scheduled completion date being between July and Sept. 2022.

Table 12: The following table indicates the maintenance and construction history on this circuit for the reporting period.

| DATE: | MAINTENANCE PERFORMED: | LOCATION: | COST (EST): |
|------------|---|--|-------------|
| 08/14/2020 | Installed Service Facilities for New Construction | T-010S-120W-028-019 at 319 Hinde St | \$942.55 |
| 08/18/2020 | Installed Service Facilities for New Construction | T-010S-120W-021-058 at 715 E 5 th | \$977.00 |
| 09/22/2020 | Replaced Service Pole and Updated Secondary Buss Facilities | T-010S-120W-028-019 – 300 Block of Hinde St | \$4,215.74 |

Actions Planned or Taken To Improve Reliability:

- Actions Planned: Mt. Carmel has no large scale actions planned for this circuit. Based on the operating history provided in Table 12 above, Mt. Carmel believes that the best short-term action is to continue routine tree trimming and inspection schedules on this circuit in an effort to identify possible reliability concerns.
- Actions Taken: See items listed in Table 12 Above.

Subsection (b)(3)(K): Commencing June 10, 2001, tables or graphical representations, covering for the last three years all of the jurisdictional entity's customers and showing, in ascending order, the total number of customers which experienced a set number of interruptions during the year (i.e., the number of customers who experienced zero interruptions, the number of customers who experienced one interruption. etc.)

Table 15:

| Number of Outages Experienced | Number of Customers | | |
|-------------------------------|---------------------|-------|--------------------------------|
| | 2018 | 2019 | 2020 – Annual Reporting Period |
| 0 | 1,257 | 1,111 | 1,535 |
| 1 | 666 | 1,484 | 904 |
| 2 | 233 | 864 | 1,837 |
| 3 | 1,068 | 421 | 319 |
| 4 | 878 | 673 | 354 |
| 5 | 595 | 482 | 317 |
| 6 | 406 | 253 | 54 |
| 7 | 146 | 80 | 77 |
| 8 | 185 | 60 | 22 |
| 9 | 36 | 19 | 4 |
| 10 | 35 | 21 | 8 |
| 11 | 3 | 5 | 4 |
| 12 | 10 | 1 | 1 |
| 13 | 1 | -0- | 2 |
| 14 | -0- | -0- | 4 |
| 15 | -0- | -0- | 9 |
| 16 | -0- | -0- | 1 |

Subsection (b)(3)(L): Commencing June 10, 2001, for those customers who experienced interruptions in excess of the service reliability targets. A list of every customer, identified by a unique number assigned by the jurisdictional entity and not the customers name or account number, the number of interruptions and interruption duration experienced in each of

the three preceding years, and the number of consecutive years in which the customer has experienced interruptions in excess of the service reliability targets.

See Supplemental Report

Subsection (b)(3)(M): The name, address and telephone number of the jurisdictional entity representative who can be contacted for additional information regarding the annual report.

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MT. CARMEL PUBLIC UTILITY CO.

ELECTRIC TRANSMISSION AND DISTRIBUTION REVIEW

ATTACHMENT “A”

CUSTOMER SATISFACTION SURVEY

MT. CARMEL PUBLIC UTILITY CO.